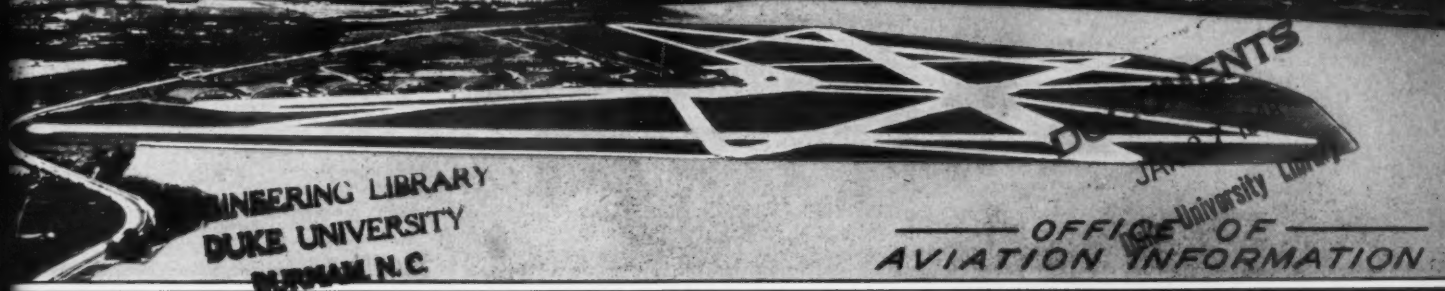


CA JOURNAL



Civil Aviation Gained Stature In 1947, T. P. Wright Reports

Continued expansion was shown during 1947 in most branches of civil aviation, T. P. Wright, Administrator of Civil Aeronautics, reports.

Private pilot certificates issued during the year totaled 125,000, an increase of almost 100 percent over 1946; 1,360 more airports were recorded; the airlines began using the CAA's instrument landing system in routine service; and 14,200,000 passengers rode the airways. On the other side of the ledger, civil aircraft production dropped to 15,800, less than half the 1946 total.

200,000 Student Pilots.—The GI program largely accounted for the record number of student pilot permits issued—200,000 during 1947. This program, in which the government paid for flight training for ex-service men, brought to more than half a million the number of those who know how to fly, or are learning to fly, and proved again the interest which young America has in the airplane. The federal money paid for this training served also to bolster hundreds of aviation training organizations which found themselves in the midst of a period of high living costs when flying training and time competed with difficulty for the average man's dollars. Addition of these 200,000 student pilots, of whom an estimated 125,000 went on to obtain private pilot certificates, increases the potential market for personal planes, Mr. Wright pointed out.

Getting Airport Action.—Private and government money added to the nation's airports, the total number rising from 4,490 to 5,850. Spurred by the GI training program, and by the need of their home localities for airports, many veterans built and operated landing fields. The Federal Airport Program got into full swing late in the year with 127 projects given final approval, costing \$12,966,628 in federal money, matched by a slightly greater amount of local funds. Of these projects, 6 already have been completed and the rest are ready for local action either in letting contracts or beginning actual construction. The 127 are almost all smaller airports, only 5 being of the airline terminal types.

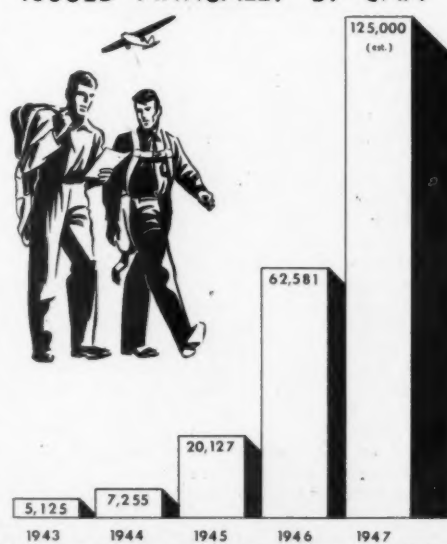
"The airport program has moved out of the slow stage and into the stage where fast, quantity production action is possible," Mr. Wright said. "The inescapable early paper work in this field, where a new staff of federal employees was working on unprecedented problems with local officials of all kinds in cities and towns of all sizes, inevitably spelled slow

progress. From now on the program will move along at a speed normal for such federal-local activities."

ILS Use Begun.—Beginning in midsummer of 1947, the airlines began the use of the CAA's instrument landing system in scheduled operation. By the end of the year, 12 lines were operating under lowered minimums at 42 stops. Ceiling and visibility minimums are lowered 100 feet and one-fourth of a mile at a time, and only when the CAA and the operators are agreed on the safety of the operation. Braniff Airlines was the first applicant for a reduction to 300-foot ceiling and three-quarters of a mile visibility, and, after six months of operation under the latter conditions, this line's minimums were reduced a second time. Regularity of service is the principal contribution of

(See page 5)

PRIVATE PILOT CERTIFICATES ISSUED ANNUALLY BY CAA



New Policy Paves Way for Airports At National Parks

A new interdepartmental policy on aviation that will provide airports for national parks, monuments, and recreation areas now inconvenient to the air traveler, was forecast recently as Assistant Secretary of Commerce for Aeronautics John R. Alison and Assistant Secretary of the Interior C. Girard Davidson reached agreement on organization of the newly established Interior-Commerce Departmental Airport Committee.

Money Available.—Integration of the policies and programs of the two departments to carry out the purposes of the 1946 Federal Airport Act is the objective of the committee which comprises representatives of both the Interior and Commerce Departments. Money is available under provisions of the 1946 Act to aid in constructing airports in the national parks, monuments, recreation areas, and in Alaska, Hawaii, and Puerto Rico—all under the jurisdiction of the Department of the Interior.

T. P. Wright, Administrator of Civil Aeronautics; George W. Burgess, Deputy Administrator; Edgar N. Smith, Acting Deputy Assistant Administrator for Airports; Joseph W. Johnson, Commerce Department Representative; George Borsari, Chief, Negotiations and Claims Division, CAA; Dr. Archie B. Goodman, Interior Department Representative, and Conrad L. Wirth of the National Park Service also participated in the discussions.

Want Park Airports.—"As a result of comprehensive investigations during the past year, the Department of the Interior is adopting a positive aviation policy for national parks, national monuments, and national recreation areas," Assistant Secretary Davidson declared. "That policy is to cooperate in the location of airports which will best serve these areas and will also suitably safeguard the natural and historical values which the Congress has instructed us to protect for the public's use," he continued.

"In doing so," Assistant Secretary Davidson added, "we think the Department of the Interior ought to have the opportunity of either sponsoring, jointly sponsoring, or financially assisting local sponsors of airports adjacent to the park entrances and conveniently available to the established ground transportation

(See page 7)

Stanton, "Father of U. S. Airways", Accepts High Aviation Post in Brazil

Charles I. Stanton, Deputy Administrator of the Civil Aeronautics Administration, will become head of the School of Air Commerce of the ITA (Aeronautical Technical Institute) of Brazil, next March.

Mr. Stanton, internationally known for his work in civil aviation, and highly regarded as the "father of U. S. airways," has been granted a leave of absence from his duties at the CAA, "with reluctance but very great pride in his selection," by T. P. Wright, Administrator of Civil Aeronautics. He has served the CAA and its predecessor organizations since 1927, less than



Charles I. Stanton

a year after its organization, and has been connected with this Nation's civil flying activities since 1917 in progressively important positions.

Adopt U. S. Methods.—The Brazilian Institute will be part of the newly created Aeronautical Technical Center at Sao Jose dos Campos near Sao Paulo. Mr. Stanton will be professor of Airways Operation and Control as well as dean of the School of Airways Engineering. Other activities located at the center will be similar to those carried on by the CAA at the Indianapolis Experimental Station, the National Advisory Committee for Aeronautics, and the Air Force at Wright Field. The Brazilian Government, in seeking his services and those of other North Americans, indicate that they view United States methods and practices as most suitable for adaptation to Brazilian needs.

"It is with great regret that I grant Mr. Stanton this leave," Mr. Wright said in making the announcement. "We are now deep in the conversion of our whole airways system, and now beginning to use flying and landing aids that are the result of years of development, much of it under the experienced and devoted direction of Charley Stanton. In addition, he recently has taken over direction of all of the CAA's technical development activities, and we will sorely miss his analytical approach in the development of many still better airway aids that are in sight."

"I am willing to grant Mr. Stanton this leave largely because this new position offers the greater financial reward which his talents warrant, and, which we are

unable to accord him under the Federal Classification Act governing salaries.

Brazil's Gain.—"The Brazilian Government has honored him with the appointment, but I believe that they could not have found any individual in the world better equipped for the purpose. It is an honor also to the CAA that the man selected is a veteran CAA man, one whose name cannot be separated from our airways system, which we justifiably consider the best in the world. Our loss, even if it does deprive us of his counsel and vision, certainly will prove to be a gain to Brazilian aviation. I am proud for him and the CAA and I anticipate his return to the CAA after this tour of duty, and further important contributions from him."

Charles Stanton's first commercial flying activity began in 1919 when he flew the first air mail routes instituted by the U. S. Government. He had learned to fly as a cadet in the Army in 1917, and since that time has never severed his connection with flying except for brief service as an engineer for the War Department, and a 2-year job as engineer for a private company in 1925-27. He rose in the Post Office Department to Assistant General Superintendent of Air Mail in 1921. In 1923, he became manager of the National Aeronautic Association, and when the Aeronautics Act of 1926 created the Aeronautics Branch of the Department of Commerce, he joined the Light-house Service to which the air activities were assigned.

Laid Out Airways.—Most of all, he worked in airways, doing the "leg" work in the field in laying out the genesis of the present 40,000-mile system. His last official CAA act before beginning his new assignment probably will be connected with that service.

His progress upward through the airways service culminated in 1939 when he was made Director of the Bureau of Federal Airways, and from that position he became Assistant Administrator and shortly after Pearl Harbor he became Administrator.

When his alma mater, Tufts College, Medford, Mass., gave him the honorary degree of Doctor of Science, it described him in these words: "Official head of America's civil aviation, you have with your own hands and mind nurtured and directed the amazing development of America's mighty empire of the air. Distinguished twentieth century pioneer and wise Administrator, Tufts is proud to share in your outstanding record of achievement."

When T. P. Wright was named Administrator in August 1944, Mr. Stanton became deputy, and devoted his full time to the increasingly important job of operation, improvement and extension of the airways. This kept him close to the flying man, and close to the new ideas and developments designed to aid him, and through his wide and friendly acquaintance with everybody in aviation from mechanic to airline president, he kept current on an amazing amount of detail. His ability to absorb detail, along with the full scope of any broad area of knowledge, is one of his outstanding talents. It matches his ability to impart knowledge in a tabulated and succinct form—a talent which undoubtedly will establish his reputation as a mentor.

Few things gave him so much pleasure during the war as his contribution to the military glider training program. He conceived the idea of converting cub-type planes into training gliders. CAA engineers worked out the details, and these became the basic glider trainers of the U. S. Air Force.

International Reputation.—Recognition by Brazil follows international recognition of Mr. Stanton's ability in aviation. After the nations had agreed on

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DEPARTMENT OF COMMERCE
W. Averell Harriman, Secretary

Civil Aeronautics Administration
T. P. Wright, Administrator
Ben Stern, Asst. Administrator
for Aviation Information

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CAA Tests Taxiway Light Designed for Large Airports

A new type of taxiway marker light for large airports is under experiment and development by the Technical Development Service of the Civil Aeronautics Administration.

The new light, which has a "cold light" gaseous tube and points the direction along the taxiway, has not reached the stage of approval by the CAA for installation under the National Airport Program. Nevertheless, a test installation at the CAA's Indianapolis Experimental Station is receiving wide attention from pilots and airport engineers.

Easy visibility, low electric current consumption, and low maintenance costs are among the advantages claimed for the new lights. An entire airport taxiway lighting system can be operated 12 hours on about 30 cents worth of electricity.

The gaseous discharge tubes are mounted to give a V-shaped directional indication to pilots, with the apex of the V pointing to the centerline of the taxiway. Mounted in pairs on each side of the taxiway, the V-shaped lights keep planes in the center of the taxiway and avoid confusion on turns. The lights have a bright blue fluorescent color, and are more efficient optically than the blue flush type of taxi lights.

The 21-inch stand on which the lights are mounted has a "quick fracture" coupling at the base which prevents damage to aircraft which accidentally strike it, and at the same time disconnects the wiring. Experiments so far indicate that even the lights themselves suffer only minor damage when struck by taxiing aircraft.

general principles of international cooperation in aviation matters, and when their representatives began to hold world assemblies and regional meetings to hammer out standards for international use, Mr. Stanton was a leader in such operations. He served principally as technical expert of the United States delegations, and at the Caribbean regional meeting was elected chairman while serving as the United States delegate, and his experience and knowledge made him a leading and respected figure. This prophet also has honor in his own country, since he enjoys the respect and affection of the diverse elements making up the aviation industry in the United States, despite the many differences of opinion that exist in this new and changing field.

No man in civil aviation is more pleasantly human than Charley Stanton, and few are so much liked personally, even by those who disagree with him in technical matters.

New Type Runway Lighting System

CAA Answer to Small Airport Needs

A small airport need of long standing has been filled with the development by the Civil Aeronautics Administration of a good, reasonably low-cost system of runway and strip lighting, Leslie C. Vipond, Chief of the CAA Lighting Division, reports.

The CAA Office of Airports, aided by airport lighting equipment manufacturers, studied and tested all types of runway and strip lighting before arriving at the recommended system for small airport use. The new units, conforming to specification L-802, are now being installed on Federal-aid projects.

The unit consists of a light mounted on a small metal cone, painted bright chrome yellow for day marking purposes. The light globe is designed to concentrate the light up and down the runway or strip.

Elevated Lights.—The lights are elevated and thus are free from most of the trouble that has plagued the old-style flush runway lights.

They are set above grass, dirt, weeds, and average snowfalls.

Water does not bother them since there are no exposed current-carrying parts below ground level. An insulating transformer is used at each elevated light so that only the isolated secondary circuits go above ground. The primary underground supply circuit is kept isolated below ground for its entire length and remains undisturbed.

The candlepower output is higher than that in any previously used boundary and runway lights. A minimum of 1,000 candlepower is specified in the main beams, ten times that required for the older-type boundary lights and twice the light realized in actual use from the type AN-L-9 flush marker lights.

Although the top of the lights generally reach to about 14 inches above ground level, experience has proved they present practically no hazard to aircraft operating on and off the airport.

Blow Unplugs Light.—The column includes a breakable coupling at ground level. If the unit is struck by a blow of two foot-pounds or more, the breakable coupling gives way. The whole marker light then comes unplugged from its below-ground

supply circuit and rolls out of harm's way.

The yellow cone may be mounted directly on the ground by three stakes, or it may be mounted on a central thin-wall conduit pipe. The unit cannot be higher than 30 inches from ground level to the top of the globe. This height limit is dictated by a CAA Technical Standard Order (TSO-N1). Minimum height possible is about 12 inches.

The trend for small airports is away from all-way fields to directional strips, following the lead of large airports. It is expected that a lot of strip-type fields will be built under the Federal-aid airport program.

"This type of construction in which landings and take-offs are made in a few selected directions, or channels, is welcomed by the lighting engineer for the reason that we believe we can do a better job for the pilots as 'like landing blind in a box.'"

Makes Landing Easier.—All pilots agree that it is easier to land between two parallel rows of lights than it is to set down in a large dark area indefinitely outlined by relatively low candlepower boundary lights. The latter method has been described by some pilots as "like landing blind in a box."

The "channelized" type of lighting provides the important elements of perspective and depth perception. The lines of lights also give adequate altitude and attitude reference. By completely outlining the runway or landing path, they provide a quick means of reference for planes approaching to land.

A part of the light is concentrated into two main beams aimed up and down the runway or strip with a slight toe-in toward the centerline. This was done by going to "channelized" lighting, thus giving more light to pilots lining up for approach. The units also furnish plenty of "off-side" light for pilots approaching from any direction.



One of the elevated runway lights made in accordance with CAA specification L-802 for installation on small airports.

Longer Flying Day.—From the operator's standpoint a lighted field means a longer "flying day," and therefore more income. With lights he can keep open after dark to paying customers.

Bearing out this is the experience to date of the Ashburn Flying Service, Inc., one of the first to install the new lighting system on its field at Hybla Valley, 3 miles south of Alexandria, Va.

Although the complete figures aren't in yet on the total cost, amortization and profit picture of the recently installed system, it is significant that Bob Ashburn, head of the service, can already demonstrate that he has made a good investment in installing approximately 5,800 feet of the new runway lights.

Mr. Ashburn has lighted 3,200 feet on one runway, and 2,600 on another. The equipment cost him \$5,800. He made the installation himself with the assistance of his airport personnel.

From the first week on, after the new installation was completed there has been a steady increase in night flying. In the first month following the installation, he reports there were 178 hours of night flying from his field, and during the second month, over 200. Each hour represents direct revenue that he wouldn't have received with the field unlighted.

Bring Extra Business.—The Hybla Valley operator believes that the installation will pay for itself in profits from night flying, and that in addition, the lighting will bring him a lot of extra business. A genuine enthusiasm for night flying is developing at this airport, and one student, who had to take his instruction after office hours, was soloed at night without having had any daylight flying hours at all.

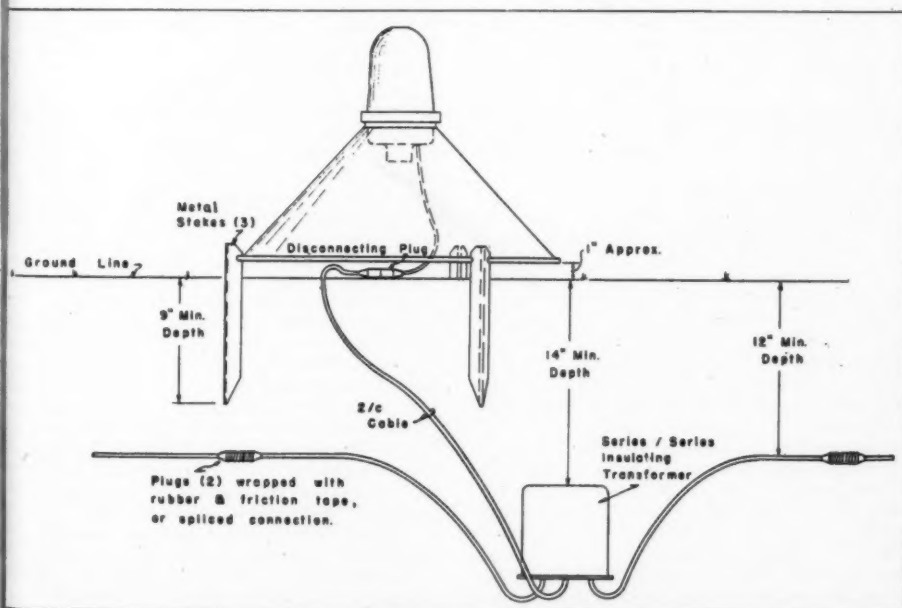
Mr. Ashburn reports that his problems of maintaining the new lights are few. He points out that every once in a while, a light is broken—possibly one a week. He states that the repair cost averaged about \$7 each time a light was struck. In all cases, damages to aircraft striking the lights has been negligible.

The night operation policy at Hybla Valley is to keep the field open each night at least until 10 p. m. whether there are customers or not. If there is business on hand at 10 p. m. the field is kept open as long as business warrants. Lately the average closing time has been between 11:30 and midnight.

Mr. Ashburn maintains that in his experience, night flying has proved safe—that flyers are inclined to be more cautious, and this counter-balances any additional hazards (real or imagined) of night flying over day flying. The lights he has installed along the runways can be seen from any point in the vicinity—even when not lined up for an approach.

In addition to other benefits, Mr. Ashburn reports that his new lights brought him from 50 to 60 transients during the first 2 months the system was in operation. He points out that the daytime hours are

(See New Runway Lights, page 9)



Sketched is the simplest type of installation for the elevated runway light. The light is mounted on three small metal stakes—a mounting recommended for small airports only—and supplied by a series circuit. Either a series or multiple circuit may be used.

Anti-noise Campaign Getting Results CAA Country-wide Check-up Shows

Notice less noise from the air lately? There's a reason. Reports received by the Civil Aeronautics Administration from all over the country reveal substantial progress during 1947 in the CAA-industry joint program to make the airplane a "good neighbor." The program has three immediate phases:

1. Rearranging, with the cooperation of the airlines, traffic patterns at airports so that take-offs and landings are not made over congested areas.
2. Education of pilots, particularly private flyers, in safe and courteous flying practice.
3. Where necessary, corrective action against low-flying pilots by the federal government under its Civil Air Regulations, or the state and local governments under their police powers.

Down to "Swish."—In addition, there is the long range attack—research and development aimed at a quieter airplane through multibladed propellers, mufflers, etc. Preliminary tests made under a National Advisory Committee on Aeronautics contract by experts of Massachusetts Institute of Technology and Harvard Business School show very promising results, with the experimental aircraft described as making only a "swishing" noise.

Airline terminal airports where steps have been taken to reroute traffic or otherwise reduce noise include LaGuardia, Newark, Washington, Boston, Rochester, Buffalo, Chicago Municipal, Miami, Dallas, Denver, San Francisco, San Diego, Los Angeles, Seattle, Portland (Oregon), and Honolulu.

Educational efforts emphasize that low flying can provoke local action to restrict all flying and that it frequently results in serious accidents. In the south-eastern region during November, for example, CAA handled 24 violation reports on low flying, buzzing of houses, and the like, three of which resulted in crashes, with fatalities in two of these. The 24 cases represented 58 percent of all violations handled by the region during the month.

Vigorous Enforcement.—Enforcement action is being carried out vigorously as a backstop to education. CAA's First Region, with headquarters in New York City, reports that during the last five months it has processed more than 300 violation actions against pilots for low or reckless flying, or both.

Cooperation with state and local authorities in enforcement is exemplified by CAA Region Four. Personnel of CAA in that region have assisted Oklahoma, Louisiana, and Arkansas training programs to guide law enforcement officers in applying state penal laws against reckless flying. Louisiana state police since have made one arrest and given three reprimands for low flying; in Arkansas there have been three arrests and two convictions, and in Oklahoma, two convictions and several reprimands.

A round-up of the situation as reported by CAA regional headquarters follows:

Region 1 (New York City).—Inspectors in all CAA Safety Regulation district offices have been asked to investigate traffic patterns and practice areas with a view toward working out patterns which will minimize annoyance to people on the ground while still being safe. In a large number of cases, changes have been made. At larger airline terminal airports, including LaGuardia, Newark, Boston, Washington, Rochester and Buffalo, CAA has met with airline, state and local officials and obtained acceptance of revised traffic patterns which have resulted in "a very great reduction" of complaints. The patterns specify definite routes for approach or climb over the least populous areas or over bodies of water; visual check points and altitudes, to eliminate the practice of "dragging in" for a long distance at high power settings; and in some cases, special regulations permitting turns under 500 feet after take-off.

Region 2 (Atlanta).—The Miami radio range is

being relocated by CAA to the west of the field, in order to swing the pattern over the Everglades. Homestead Field is being reactivated and a portable instrument landing system installed, in order that air carrier training operations and other traffic can be moved to that location. Throughout the region, CAA and the air carriers are working to route traffic away from congested areas wherever possible. Against low-flying pilots, CAA took the following actions during November: issued 12 Civil Penalty Letters, offering to accept a stipulated sum of money in lieu of other action; brought four complaints before the Civil Aeronautics Board, requesting suspension or revocation of pilot certificates; and administered five reprimands.

Region 3 (Chicago).—The manager of the Chicago Municipal Airport is publishing rules concerning the run-up of big engines, particularly late at night. It will be standard procedure to run up engines on the outer ramps with propeller blasts toward the center of the field. The CAA Flight Operations Branch has been holding meetings with airline chief pilots to obtain recommendations for action against noise, and is studying suggestions from CAA airport traffic control towers for channeling that will reduce noise. Complaints from residents of Cincinnati about the noise of "pylon 8's" in pilot training were eliminated after a CAA inspector arranged to have these maneuvers performed over a different location. CAA has cooperated with state aviation directors and state police of Ohio, Michigan, Indiana, Wisconsin and North Dakota in holding enforcement schools, and similar schools are planned in Kentucky, Illinois, and Minnesota.

Region 4 (Fort Worth).—Love Field, Dallas, was the only airport in the region where airline traffic noise caused complaints. CAA called a meeting at which all airlines operating into this airport agreed that prior to starting a turn after take-off, their pilots would gain 1,000 feet as quickly as possible. This has ended the complaints. In addition to the state action by Oklahoma, Louisiana, and Arkansas already described, a number of municipalities in Texas have adopted penal ordinances directed against the low-flying pilot, with several arrests and convictions already chalked up.

Region 5 (Kansas City).—A change in traffic pattern for aircraft conducting instrument landing system training at Denver has eliminated complaints from residents south and southwest of the airport. CAA inspectors have been conducting an educational program in conjunction with scheduled air carriers, designed to make operations in and out of airports unobjectionable. In addition to CAA actions, Kansas City, Mo., and several smaller cities in the region have adopted ordinances prohibiting low flying and have waged enforcement campaigns resulting in arrests and convictions.

Region 6 (Los Angeles).—From June 1 to November 30, CAA records show 53 actions for violations of the regulations against low and reckless flying, with steps taken ranging from a reprimand to a 90-day sentence passed by the Inglewood, Calif., Justice Court, and suspended on condition that the violator serve 30 days in county jail, pay \$100 fine, and remain out of all airplanes for six months. San Francisco traffic has been routed over the Bay, a runway at Bay Meadows Airport has been realigned to avoid flight over residential areas, a change has been made in take-off procedure at Lindbergh Field, San Diego, to

1947 Aircraft Output Dropped off Sharply In Ten-Month Period

With but two exceptions—April and September—civil aircraft shipments steadily declined in 1947, averaging 1,450 planes a month through October. The peak month was January when 2,166 planes were shipped. April was not far behind with 2,038.

Shipments of three- and four-place planes ran counter to the over-all trend and more than tripled the 1946 output.

The monthly figures on civil aircraft shipments for the first 10 months of 1947 and comparable records for 1946, the biggest civil plane production year yet on record, are given in the following tables:

January-October 1947

Month	2 place	3 & 4 place	Over 4 place	Total all models
January	969	1,176	21	2,166
February	793	1,109	12	1,914
March	789	972	24	1,785
April	964	1,042	32	2,038
May	847	771	28	1,646
June	590	572	31	1,193
July	475	508	15	998
August	434	470	25	929
September	547	431	50	1,028
October	390	364	48	802
Totals	6,798	7,415	286	14,499

January-October 1946

Month	2 place	3 & 4 place	Over 4 place	Total all models
January	1,172	15	40	1,227
February	1,180	24	48	1,252
March	1,919	50	50	2,019
April	2,228	51	48	2,327
May	2,921	80	72	3,073
June	3,202	178	51	3,431
July	3,087	271	30	3,388
August	4,204	467	27	4,698
September	3,554	497	39	4,090
October	3,920	553	27	4,500
Totals	27,387	2,186	432	30,005

avoid congested areas of Point Loma, and an operations agreement to reduce noise in the vicinity of Los Angeles Municipal Airport has been worked out with all scheduled airlines using the field.

Region 7 (Seattle).—A program has been in effect throughout the year to channel Seattle traffic over Puget Sound or areas not densely populated, and Portland, Oregon, arrivals and departures over the Columbia River, whenever practicable. The regional attorney reports that 58 percent of all violations acted upon involved low flying, exactly the same percentage as in Region 2.

Region 8 (Anchorage).—Airline traffic in Alaska was routed a maximum distance from residential areas some time ago, and no complaints have been received for at least one year. Low flying by private pilots over populated areas, and subsequent complaints, are virtually nonexistent in the Alaskan region, CAA reports.

Region 9 (Honolulu).—All aircraft operators, including the Air Force and Navy, have pledged full voluntary cooperation to route flights away from the city of Honolulu. Only a limited number of complaints now are received, and educational work is continuing to make sure new pilots are informed of proper procedures. Seven low-flying violations were reported during 1947. There is an ironic footnote to two of the incidents in the CAA report: "For the alleged violation of August 12 a civil penalty was recommended, but no action was taken in view of the fact that the pilot was killed in an aircraft accident on August 25 (date of the second alleged violation by the pilot)."

1947 Aviation Growth Noted in CAA Records

(Continued from page 1)

ILS to airline operation, and users have reported completion of many trips which otherwise would have been cancelled because of weather.

Ground controlled approach radar was placed in operation by CAA at New York, Chicago, and Washington, and brought several aircraft in distress to safe landings.

More Airline Passengers.—The airlines, in domestic and international operations, carried 15,700,000 passengers in domestic operations during the year, an increase of 18.5 percent over last year. This traffic volume, which reflects the steady growth in acceptance of air travel, was handled with a total fleet which grew from 826 to 965 during the year, through the addition of 156 four-engine aircraft and the retiring of 17 smaller planes.

The safety record was not as good in 1947 as for several years past. There were fewer aircraft involved in fatal accidents, 5 in number, but the larger size of the planes increased the number of fatalities, the rate being 3.4 passenger fatalities per 100,000,000 passenger miles flown. The comparable figure was 1.2 in 1946.

The airlines made further inroads on the Pullman passenger traffic, increasing their passenger-mile percentage of Pullman passenger miles from 29 to 44 percent. Domestic ton-miles of express and freight carried rose by 84.8 percent, the figures being 38,608,736 ton-miles in 1946 and 71,363,600 ton-miles in 1947.

International American Flag airlines showed increases in every department of their operation, and improved their safety record by cutting the 3.5 passenger fatalities per 100,000,000 passenger-miles of 1946 to 1.1 in 1947. They carried 1,500,000 passengers, an increase of 44 percent over 1946; flew 89,859,000 revenue miles as against 59,373,265; and more than doubled their freight and express ton-miles flown from 15,092,127 to 39,312,300.

The number of certificated pilots rose from 400,000 at the beginning of the year to an estimated 455,000, and the registered civil aircraft rose from 81,002 to an estimated 95,000. There was a considerable reduction in the number of civil aircraft produced, the number dropping from the 35,001 in 1946 to 15,800 in 1947. Total value of production increased from \$171,064,000 to \$188,480,000, however, as a result of the output of more elaborate transport planes.

Developed Cross-wind Gear.—Two other developments of importance during last year were the completion, under CAA contracts, of the cross-wind landing gear and the establishment of maximum length and strength provisions for airports to be built partly with federal money. The cross-wind landing gear program, costing \$150,000 in federal funds, is developing such gear for seven types of planes, ranging from small, two-seater planes to the DC-3 transport plane. Its significance lies in the fact that beginning with its 1949 airport program, the CAA will consider the installation of single strip or single runway airports in contrast to the large landing areas now required to put runways down in several directions.

The decision of the Administrator to limit runways in length and strength for various kinds of service such as local, feeder, express, and international was hailed by municipalities as some relief from the demands for ever bigger and more expensive airports. It could have the effect of encouraging development of better-performing aircraft able to use the ground facilities available, rather than requiring constant change and enlargement in such facilities.

Airways safety improvements did not progress during 1947 at the rate hoped for by the CAA, since funds for establishment of new air navigation aids were cut to 55 percent of the previous year's level.

CIVIL AIRCRAFT PRODUCTION

1946 - 1947

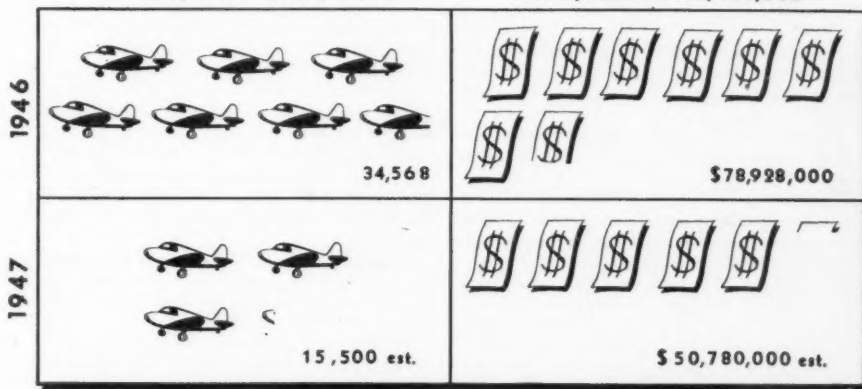
PERSONAL PLANES

NUMBER

each symbol = 5,000 planes

VALUE

each symbol = \$10,000,000



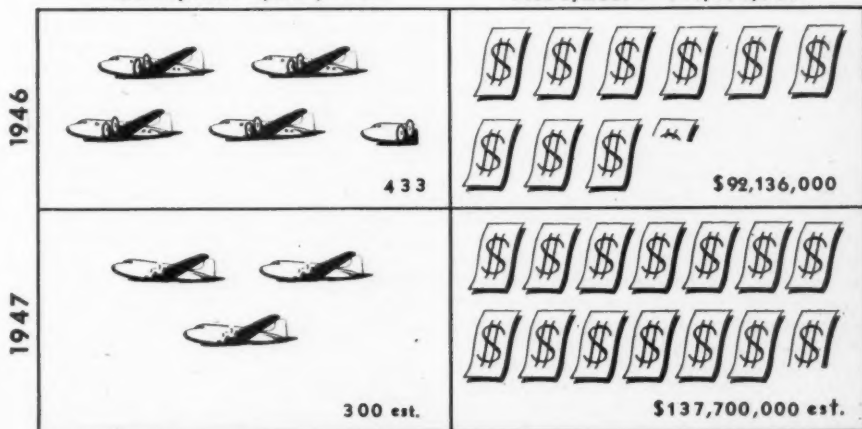
TRANSPORT PLANES

NUMBER

each symbol = 5,000 planes

VALUE

each symbol = \$10,000,000



✓ two, three, four, and five place models.

✗ over five place, including executive and feeder type models.

Complaints about noisy airplanes plagued the CAA throughout the year and much of the time of its personal flying and safety regulation experts in the field was spent in alleviating particularly objectionable conditions, with excellent progress reported. Airport managers and operators of various flying services cooperated in this, and revised their traffic patterns.

New Safety Measures.—New safety steps taken during the year include requiring the installation of radar terrain clearance indicators for prevention of collisions in flight; warning devices to detect smoke in airplane compartments during flight; development of flame-resistant coatings for aircraft fabric and fireproof hydraulic fluids; windshields which resist fracture in collisions with birds; new navigation procedures through uses of VHF ranges; and studies in airline pilot selection and in flight instruction methods.

Radar made its appearance on the civil airways this year, with three ground controlled approach installations being turned over to the CAA and three surveillance radar sets being made available for CAA observation and study. The CAA request for 25 additional

radar precision beam and surveillance sets for next year was cut to two sets, and that for 25 surveillance sets was cut to four. CAA traffic controllers continued their study of radar for use in handling the steadily growing volume of air traffic.

Air-Marked Skyways.—A resurgence in interest in air marking began during the year when the Los Angeles Chamber of Commerce and the Washington Board of Trade proposed a skyway between those two cities to be plentifully marked by cities and states lying along the route. The route was designated by the CAA as "Skyway One," and by the end of the year, ten other such skyways were being discussed.

While the CAA's aviation education program underwent no substantial changes during 1947, it obtained greatly expanded results, with 30 states issuing bulletins for use in aviation education by instructors from grade schools to colleges. In all, 47 states, in varying degrees, took part in the year's activities. The Sixth Inter-American Aviation Training Program was concluded during the year. For the first time, high government officials connected with aviation in Latin American Republics were included.

PCA Pilot Flew Too Low—The Pennsylvania Central Airlines' crash into a mountain ridge near Lookout Point, W. Va., June 13, 1947, was probably caused by the pilot's descent below the minimum en route altitude during poor visibility conditions, the Civil Aeronautics Board found in its investigation of the accident.

A contributing cause was the faulty clearance given by Airway Traffic Control, tacitly approved by the company dispatcher, and accepted by the flight, the Board said.

The plane struck the ridge at 1,425 feet after entering a cloud which covered the top of the ridge. The 50 occupants were killed.

Corrective action taken as a result of this collision with mountains and similar accidents included setting uniform en route cruising and initial approach altitudes for all air carriers throughout the United States. Previously, airlines set minimums which varied from each other and also from those advised by the CAA.

CAA personnel have been instructed not to issue ATC clearances below established minimums, and the Board has ordered airlines to install terrain warning indicators in addition to altimeters.

The flight, en route from Pittsburgh to Washington, D. C., was first cleared to the Herndon fan marker and was advised there would be more than an hour's delay at Herndon before approach clearance could be given into Washington.

The flight then requested contact clearance to approach Washington on the adjacent Arcola radio range, and was cleared to cross the Arcola station at 2,500 feet or below flying contact if conditions permitted. Otherwise the flight was advised to hold at 2,500 feet and inform Washington ATC.

Neither the CAA nor PCA had set minimum en route altitudes for the new Arcola airway, and the company had not authorized its pilots to use this route. The minimum altitude between Martinsburg and Herndon over similar terrain is 3,000 feet for both instrument and contact flights.

The Board said that the pilot requested a clearance on the Arcola range contrary to the established company operating procedures. The company dispatcher made no effort to determine whether the requested and approved clearances which passed through his hands followed company practice. And the clearance was not given in accordance with instructions then governing airway traffic control.

The Board pointed out, however, that it is the pilot's ultimate responsibility to avoid collision with terrain regardless of the clearance he receives. "The pilot of this aircraft was familiar with the general characteristics of the terrain between Martinsburg and Washington. Nevertheless, he was flying at 1,425 feet over terrain rising at points to between 1,600 and 1,800 feet."

Captain Horace Stark, pilot in command of the flight, had 28 years of flying experience and had been flying over the Pittsburgh-Washington route for 14 years as pilot for PCA.

Asleep at the Controls?—After flying for long periods without adequate rest, the pilots were unable to remain fully awake and alert, the Board decided in its investigation of the Burke Air Transport accident near Melbourne, Fla., July 13, 1947. Twelve of the 33 passengers and the two pilots lost their lives in the crash.

During a period of 37 hours 45 minutes, the two pilots had been in the air for more than 23 hours on a round trip between San Juan, Puerto Rico, and Newark, N. J. The flight left San Juan at 2:45 on July 11. After only 8 hours of rest at Newark, the pilots began the return trip.

At 4:30 on the morning of July 13 witnesses on the ground saw the plane at an altitude of from 300 to 500

feet near Melbourne. The engines were sputtering and misfiring, they said. The aircraft gradually lost altitude until it struck the ground in a nearly level attitude.

The flight did not contact any airway radio station to report an emergency, and made no attempt to land at the Melbourne-Eau Gallie airport, which was equipped for night landing, and located 3 miles east of the aircraft's flight path, and 6 miles north of the crash.

The pilots did not have their safety belts fastened, and did not warn the passengers to fasten theirs prior to the crash.

From these facts the Board reached the conclusion that the emergency, regardless of what its nature may have been, came to the notice of the flight crew suddenly.

Admitting that events in the cockpit immediately prior to the crash can only be surmised, the Board said it would be surprising if the pilots, fatigued by long hours of flying, did not fall asleep during the early morning hours while cruising on automatic pilot. Awakened by loss of power in the left engine, or because of the imminence of the crash itself, they would be confronted with an emergency which neither time nor immediate available power permitted them to correct.

The Board also found that the company did not maintain proper maintenance and operation records. The carburetor on the left engine and 10 spark plugs from both engines were defective. And the plane left Newark with an overload of 2,047 pounds.

Burke Air Transport, a nonscheduled carrier, reporting Galveston, Tex., as its home office and operating base, was issued an operating certificate by the CAA fourth regional office. About 30 days later the carrier transferred all operations to Miami and began service between Newark and San Juan, without applying for a new operating certificate from the second region which controls civil flying in the Miami area, nor giving CAA official notice of the change of bases.

Made Position Error.—Because of an error in determining his position, the Western Airlines' pilot of Flight 44 started his descent into San Diego before clearing the Laguna mountain range, the Board concluded in its investigation of the accident which occurred Dec. 24, 1946.

The plane struck the eastern slope of Cuyapaipe Mountain at 6,120 feet—75 feet below the crest. The scene of the crash was about 3 miles southeast of Mount Laguna. Ten minutes earlier the flight had reported that it was over Mount Laguna at 7,000 feet.

The Mount Laguna nondirectional radio beacon, which provides an excellent radio check for the position over Mount Laguna, was not requested by the pilot, the Board said. It was operated at that time only "on request." Since this accident the CAA has placed the beacon in continuous operation.

The company has also raised its minimum altitude to 9,000 feet for night contact flights over the Holtville-San Diego route. Planes flying at the 7,000-foot altitude previously used by the air carrier would not clear the highest terrain on the route by the required 1,000 feet, the Board said.

The pilot apparently saw the mountain just before the crash and banked the plane in an attempt to avoid it, the Board reported. Although the weather was contact, an overcast and absence of ground lights would make the area over the mountains very dark and the terrain hard to see. All 12 occupants of the plane were killed.

The captain of the flight, George Burton Sprado, had made 33 flights for Western over the Holtville-San Diego route after he had been checked out as a captain the latter part of May 1946. His last flight on this route had been made 3 hours before.

Forced to Land on Beach.—Unable to land at an airport in the New York-Washington area, first because of a rash of emergencies and then because static interference made range reception impossible over low-frequency radio equipment, American Airlines' Flight 203 finally landed the 13 passengers and crew safely on Jones Beach, New York, Jan. 5, 1947.

During the evening 7 emergencies were declared at Washington, 7 at LaGuardia, 2 at Philadelphia, and 2 at Baltimore.

At the base of the traffic jam on the instrument facilities was a forecast of satisfactory conditions by both the company and the Weather Bureau although weather below visual flight minimums developed throughout the area. An insufficient number of radio-sonde stations in the northeastern states was responsible for the inaccurate forecast, the Board said. The Weather Bureau lacked information on the high altitude conditions which caused the storms. As a result a far greater number of aircraft were dispatched into the area than would have been the case had more complete information been available.

Deficiencies in emergency and navigation aids which contributed to the flight's experience have undergone remedy since the date of the accident, the Board reports.

The CAA program of replacing low frequency with the static-free high frequency radio ranges is well under way. Radar equipment has been installed at both LaGuardia and Washington National Airport for use in emergencies. The scheduled air carriers and the Army and Navy have agreed upon frequencies which will enable civil planes to take advantage of military radar equipment during emergencies. Arrangements have also been made to permit airway traffic control to route military planes to military airports when civil approach facilities are becoming saturated.

The Board commended Captain John E. Booth, pilot of the flight, on his judgment and skill in completing a safe emergency landing under difficult circumstances.

Tried "Low Ceiling" Landing.—Failure of the pilot to maintain flight at or above the minimum safe altitude for instrument approach to the Washington National Airport is given as the probable cause of the Eastern Air Lines' crash on a low ridge 200 feet high near Alexandria, Va., Oct. 11, 1946.

Although the latest Washington weather report received by the pilot was ceiling "indefinite 300 feet," visibility 3 miles, the pilot requested permission to "come in for a look," a practice which has since been ruled out when ceilings are reported below minimum, regardless of whether or not they are reported as "measured." The Washington minimum for instrument approach is 500 feet.

The flight, en route from Miami to Newark, had previously been cleared by the company to continue on to Newark. When informed that no further flights were being accepted in the New York area, the captain, without checking on whether such a restriction included this flight, decided to attempt an approach to Washington and received ATC clearance.

ATC traffic congestion notices are transmitted to air carriers as a guide in planning operations, and do not primarily concern flights which have already been dispatched, the Board pointed out.

The pilot descended to 500 feet over the airport on the first approach. On finding he could not make a safe straight-in landing from that altitude, he initiated a "missed approach" procedure rather than circle the airport underneath the overcast. On the second approach the plane struck the ground. The pilot was seriously injured, but none of the remaining 3 crew members or the 22 passengers received other than minor injuries.

CAB Extends Routes Of Two Feeder Lines Into Mississippi Area

The Civil Aeronautics Board has extended the route systems of two feeder carriers, Parks Air Transport and Southern Airways, to provide for local service on a 3-year trial basis in the Mississippi Valley area.

The Board also granted new trunkline service to five major airlines and expanded the feeder service of Trans-Texas Airways in its decision in the Mississippi Valley case.

Parks Air Transport was previously granted feeder routes in the North Central and Great Lakes states. The new routes extend north of St. Louis into Iowa, south into Tennessee and Kentucky, and west into Kansas and Oklahoma. These routes are adjacent and related to those already granted Parks, the Board points out, promising an efficient and economically sound operation over the whole system.

Southern Airways' system in the southeastern states has been extended from Memphis, Tenn., into Mississippi, Alabama and Louisiana.

The new segment on Trans-Texas Airways route provides for stops at Beaumont and Galveston between Lufkin and Houston, Tex. Trans-Texas' feeder system lies in western, central and southern Texas.

New trunkline service includes the extension of Mid-Continent from Kansas City to St. Louis, via Jefferson City. Eastern will serve Lafayette-New Iberia, La.; Delta, Longview-Kilgore, Tex.; Chicago and Southern, Hot Springs and El Dorado, Ark.; and TWA has a new stop at Quincy, Ill.-Hannibal, Mo.

Following are the Mississippi feeder routes:

Parks Air Transport—(a) between the co-terminals St. Louis, Mo., and East St. Louis, Ill., the intermediate points Hannibal, Mo.-Quincy, Ill., Keokuk-Fort Madison, Burlington, and Muscatine, Iowa, and the terminal Davenport, Iowa-Moline, Ill.; (b) between the co-terminals St. Louis and East St. Louis, the intermediate points Cape Girardeau, Mo., and Cairo, Ill., and (1) beyond Cairo, the intermediate points Paducah, Ky., Dyersburg, and Jackson, Tenn., and the terminal Memphis, Tenn.; and (2) beyond Cairo, the intermediate points Poplar Bluff, Mo., and Jonesboro, Ark., and the terminal Memphis, Tenn.; (c) between the co-terminals St. Louis and East St. Louis, the intermediate points Jefferson City, Springfield, and Joplin, Mo., Miami, Okla., and the terminal Tulsa, Okla.; and (d) between the terminal Kansas City, Mo., the intermediate points Topeka, Emporia, Chanute, and Coffeyville, Kans., Bartlesville, Okla., and the terminal Tulsa, Okla.

Southern Airways—(a) between the terminal Memphis, Tenn., the intermediate points Clarksdale, Greenville, and Vicksburg, Miss., and the terminal Jackson, Miss.; (b) between the intermediate points Columbus and Meridian, Miss., and the terminal Jackson, Miss.; and (c) an extension from Jackson, Miss., to New Orleans, La., via Natchez, Miss., and Baton Rouge, La., and for an extension from Meridian to Hattiesburg, Miss., via Laurel, Miss., and beyond Hattiesburg, the intermediate points Mobile, Ala., and Gulfport/Biloxi, Miss., and the terminal point New Orleans, and beyond Hattiesburg, the intermediate point Bogalusa, La., and the terminal New Orleans.

Merged With Flight Manual

CAA Manual 60, Air Traffic Rules, has been made a part of the Flight Information Manual, appearing as a new section in the January 1 issue. The Flight Information Manual, containing related data on airport and navigation aids, is issued twice a year and sells at 55 cents a copy at the U. S. Government Printing Office.

Two Assistant Director Posts Created in Safety Bureau

The Safety Bureau of the Civil Aeronautics Board has been reorganized to provide for two assistant directors, one supervising safety regulation and the other having charge of accident investigation and analysis.

John M. Chamberlain, who has been serving as Acting Director of the Bureau, was designated as one of the new assistant directors, with supervision over the existing Safety Rules and International Standards Divisions. The Board named William K. Andrews, Jr., Assistant Chief, Accident Investigation Division, as the other assistant director, with supervision over the existing Accident Investigation and Accident Analysis Divisions.

The new assistant directors will report directly to the Board while the position of Safety Bureau Director remains vacant.

National Park Airports

(Continued from page 1)

systems. The Federal Airport Act does not now permit us that discretion, although cities apparently can locate airports either in or outside their boundaries. We will cooperate with the CAA in the investigation of the airport and seaplane base requirements of national parks, monuments, and recreation areas, as well as other areas under this Department's jurisdiction.

Offers Financial Aid.—When properly authorized, we will, within the funds provided us and in conformance with the spirit of the Federal Airport Act, assist in financing airports for these areas. Where in the opinion of the CAA and the Park Service, satisfactory airport sites are not available in the vicinity of park entrances because of topographical, financial, cultural or other reasons, consideration will be given to developing airports inside the parks and monuments. Working together in this manner, I am certain we can develop a National Airport Plan which will fully serve the needs of both private and commercial aviation," Assistant Secretary Davidson concluded.

"The Department of Commerce and the CAA," said Assistant Secretary of Commerce Alison, "is fully aware of the responsibilities entrusted to the Department of the Interior for the protection, conservation and wise use of our National Parks and Monuments."

Mr. Alison continued, "In administering the National Airport Program, the primary responsibility for which has been entrusted to the CAA by the Congress, we will seek to supplement the Department of Interior's job of protecting the parks for the generations yet to come."

Then, referring to the above recommendations of Assistant Secretary Davidson, Assistant Secretary Alison emphasized, "The Department of Commerce and the CAA are prepared to recommend to the Congress an additional provision in the Federal Airport Act which would authorize the Department of the Interior to sponsor or assist in the sponsorship of airports either in or in the proximity of National Parks, Monuments, and Recreation areas. We are prepared to include such airports in the revised 1948 National Airport Plan, and we will cooperate fully with the Department of Interior and the National Park Service in specifically locating such airports at mutually acceptable locations."

CAA in Accord.—CAA Administrator T. P. Wright and Deputy Administrator George W. Burgess emphasized that the CAA is in full accord with this recommendation, and is gratified with the positive leadership shown by Assistant Secretary Davidson in developing such a welcome policy. Mr. Wright added, "We are instructing our regional offices to establish contacts with appropriate National Park Service officials and to initiate immediate plans for cooperative investigation for National Park airport sites."

CAB Equipping Plane With Latest Devices For Weather Flying

Taking the lead in the use of weather flying devices, the Civil Aeronautics Board is equipping its own Douglas DC-3 executive aircraft with the latest type flight and landing aid instruments, and all instruments are being regrouped to conform to the standardized instrument panel used by the Army Air Forces.

Install Terrain Indicator.—The new equipment will include an absolute terrain proximity indicator which will warn the pilot of the altitude of the aircraft above the ground at heights of 2,000 feet, 1,000 feet, and any predetermined altitude between 300 and 500 feet. This type of instrument, operating on electronic principles, was recommended by the President's Special Board of Inquiry on Air Safety, and the CAB has ordered all scheduled passenger planes flying at night, or in instrument weather, to install the device by February 15.

The latest type instrument landing system (ILS) equipment, with dual instrument dials, is also being installed. The dual instrument will permit either the captain or copilot to operate the Board's aircraft on all instrument approaches to landing.

The regrouping of flight instruments to conform to the AAF standardized instrument panel will lessen pilot fatigue during periods of instrument flying, according to Colonel Robert Garrett, chief pilot of the Board. While individual airline companies have devised uniform instrument grouping for their own aircraft, no standardized instrument flight panel has yet been adopted for use by all U. S. air carriers.

New Type Handles.—New control handles shaped to conform to the control they actuate are also being tested in the Douglas plane the Board revealed. A new landing gear lever, with a small wheel imbedded in the handle, conforming to the plane's landing gear wheels, provides instant touch identification to the pilot. The flap handle has been flattened out to match as nearly as possible the wing flap which it operates.

The Board pointed out that although these two control levers are located in proximity on most transport aircraft, shaping the handle to resemble the control it actuates will make it extremely unlikely that pilots will inadvertently move the landing gear handle instead of the wing flap handle, or vice versa.

ALPA Head Named Member Of Aviation Psychology Group

David L. Behncke, president of the Air Line Pilots Association, has been named to membership on the National Research Council committee on aviation psychology. Announcement of his selection was made by Morris S. Viteles, chairman of the committee.

This will provide active participation on the part of pilots and of their union in a research program designed to increase airline safety. The program is planned and directed by the National Research Council and carried out by universities and other research organizations, using Civil Aeronautics Administration funds.

Attention in current research is centered on the improvement of procedures for selecting, training, and rating airline pilots.

Mr. Behncke, because of his experience as a flyer, will bring to the program first-hand knowledge of the problems to be studied.

Scheduled Air Carrier Operations

Source: Cab Form 41

Domestic Trunk Lines—October 1947

Operator	Revenue miles	Revenue passengers (unduplicated)	Revenue passenger-miles (000)	Express and freight (tons)	Ton-miles flown		Passenger seat-miles (000)	Revenue passenger load factor (percent)
					Express	Freight		
American Airlines, Inc.	5,227,787	288,650	140,500	5,019.0	498,674	1,785,005	197,147	71.27
Braniff Airways, Inc.	963,622	57,666	18,774	335.0	76,212	77,341	28,832	65.12
Chicago & Southern Air Lines, Inc.	644,164	27,757	11,206	317.0	66,078	63,825	17,774	63.05
Colonial Airlines, Inc.	269,236	13,239	3,691	45.6	5,674	4,134	5,396	68.40
Continental Air Lines, Inc.	449,066	14,720	5,341	58.0	6,705	18,718	9,255	57.71
Delta Air Lines, Inc.	1,077,425	47,166	16,698	432.0	82,389	134,696	28,925	57.73
Eastern Air Lines, Inc.	4,173,589	164,451	73,710	16.9	289,920	141,208	141,208	68.96
Inland Air Lines, Inc.	177,965	6,348	2,433	16.9	3,613	2,449	3,528	68.96
Mid-Continent Airlines, Inc.	644,627	27,329	8,185	140.0	15,614	26,318	13,016	62.88
National Airlines, Inc.	762,831	26,044	13,011	183.2	71,106	60,616	28,011	46.45
Northeast Airlines, Inc.	306,152	27,063	5,138	177.2	8,063	18,423	8,279	62.06
Northwest Airlines, Inc.	1,457,913	60,780	31,725	588.2	128,857	246,120	44,272	71.66
Pennsylvania-Central Airlines Corp.	1,370,798	103,988	27,328	1,253.0	153,274	352,411	44,805	60.99
Transcontinental & Western Air, Inc.	4,529,803	110,559	77,250	1,358.0	469,077	807,101	116,188	66.49
United Air Lines, Inc.	5,794,542	195,542	125,591	2,876.0	601,916	1,576,712	172,075	72.99
Western Air Lines, Inc.	523,883	24,130	9,304	177.0	22,237	48,487	17,525	53.09
Total	28,373,403	1,195,432	569,885	*12,995.2	2,499,411	*5,222,356	876,236	65.04

Domestic Trunk Lines—January-October 1947

Operator	Revenue miles January-October		Revenue passengers January-October		Revenue passenger-miles (000) January-October		Express and freight (tons) January-October	
	1947	1946	1947	1946	1947	1946	1947	1946
American Airlines, Inc.	49,571,350	51,483,048	2,392,586	2,013,919	1,199,199	1,057,768	25,428.0	15,347.0
Braniff Airways, Inc.	9,183,552	9,486,715	495,952	439,056	167,573	177,255	2,180.9	1,453.6
Chicago & Southern Air Lines, Inc.	5,938,904	6,759,267	241,097	297,558	94,756	117,518	2,099.0	1,060.7
Colonial Airlines, Inc.	2,700,963	2,620,840	118,312	131,226	32,993	38,966	263.2	181.0
Continental Air Lines, Inc.	4,283,294	4,267,292	146,531	177,181	50,612	65,852	395.0	260.0
Delta Air Lines, Inc.	9,767,599	9,001,503	421,323	417,767	171,619	171,252	2,460.0	1,014.0
Eastern Air Lines, Inc.	37,777,246	33,354,868	1,419,163	1,247,151	724,405	640,507	143.1	4,605.0
Inland Air Lines, Inc.	1,847,505	1,682,874	67,784	69,577	23,984	19,279	625.1	79.4
Mid-Continent Airlines, Inc.	5,570,666	4,283,477	230,635	208,851	70,245	63,331	1,063.7	305.4
National Airlines, Inc.	7,871,389	7,435,440	264,996	235,948	136,766	139,171	865.1	513.7
Northeast Airlines, Inc.	3,378,503	3,374,270	278,321	347,137	53,432	70,332	3,436.3	1,601.3
Northwest Airlines, Inc.	14,406,838	15,376,875	566,046	526,304	303,901	321,300	10,465.0	5,049.0
Pennsylvania-Central Airlines Corp.	13,818,127	14,575,074	946,269	1,136,687	247,578	317,322	9,566.0	8,729.0
Transcontinental & Western Air, Inc.	40,220,227	36,209,920	888,522	791,459	679,669	669,852	16,912.0	9,129.4
United Air Lines, Inc.	50,357,848	45,461,229	1,678,953	1,465,294	1,045,298	903,005	1,703.9	1,135.1
Western Air Lines, Inc.	6,305,951	7,139,277	366,179	405,669	148,363	161,908		
Total	262,999,962	252,871,969	10,522,669	9,910,784	5,150,393	4,934,618	*77,606.3	50,806.2
Index (1946=100)	104.01	100.00	106.17	100.00	104.37	100.00		100.00

Operator	Ton-miles flown				Passenger seat-miles (000) January-October		Revenue passenger load factor (percent) January-October	
	Express January-October		Freight January-October		1947	1946	1947	1946
	1947	1946	1947	1946				
American Airlines, Inc.	4,022,105	3,740,701	8,330,663	4,246,255	1,682,306	1,258,269	71.28	84.07
Braniff Airways, Inc.	662,381	441,990	331,236	165,255	267,178	219,906	62.72	80.60
Chicago & Southern Air Lines, Inc.	545,729	371,710	298,483	17,690	159,103	161,449	59.56	72.79
Colonial Airlines, Inc.	51,234	42,946	4,134	0	53,432	52,407	61.75	74.35
Continental Air Lines, Inc.	69,394	55,348	102,658	47,241	88,285	96,232	57.33	68.43
Delta Air Lines, Inc.	595,635	390,655	620,213	71,893	274,323	233,908	62.56	73.21
Eastern Air Lines, Inc.	2,976,822	2,533,520	172,545	172,545	1,175,920	799,741	61.60	80.09
Inland Air Lines, Inc.	35,064	15,914	23,068	2,931	36,074	30,347	66.49	63.53
Mid-Continent Airlines, Inc.	121,469	105,319	79,674	0	112,633	84,447	62.37	74.99
National Airlines, Inc.	365,981	185,003	399,237	17,919	244,892	174,715	55.85	79.66
Northeast Airlines, Inc.	90,926	89,459	44,073	0	104,416	101,243	51.17	69.47
Northwest Airlines, Inc.	1,358,972	917,881	708,231	0	426,827	377,574	71.20	85.10
Pennsylvania-Central Airlines Corp.	1,676,625	971,370	1,790,187	173,379	457,203	436,059	54.15	72.77
Transcontinental & Western Air, Inc.	4,371,696	3,224,265	3,738,597	1,768,039	1,012,077	778,137	67.16	86.08
United Air Lines, Inc.	5,419,383	4,326,122	7,724,123	2,926,531	1,360,040	1,046,593	76.86	86.28
Western Air Lines, Inc.	343,620	318,821	356,486	123,095	233,106	213,503	63.65	75.83
Total	22,707,036	17,641,024	*24,551,063	9,732,773	7,687,815	6,064,530	66.99	81.37
Index (1946=100)	128.72	100.00		100.00	126.77	100.00	82.33	100.00

Passenger-miles flown (total revenue and non-revenue, in thousands):

January—388,289; February—380,606; March—503,466; April—535,254; May—574,303; June—556,562; July—553,950; August—621,950; September—619,494; October—588,317; Total—5,322,191.

*Eastern Air Lines not included in total.

Domestic Territorial Lines—October 1947

Operator	Revenue miles	Revenue passengers	Revenue passenger-miles (000)	Express and freight (tons)	Ton-miles flown		Passenger seat-miles (000)	Revenue passenger load factor (percent)
					Express	Freight		
Caribbean-Atlantic Airlines, Inc.	32,953	5,975	362	7.3	0	488	792	45.71
Hawaiian Airlines, Ltd.	240,297	25,726	3,441	424.0	11,108	50,449	5,180	66.43
Total	273,250	31,701	3,803	431.3	11,108	50,937	5,972	63.68

Scheduled Air Carrier Operations—Continued

Domestic Feeder Lines—October 1947

Operator	Revenue-miles	Revenue pas- sengers	Revenue pas- senger-miles (000)	Express and freight (tons)	Ton-miles flown		Passenger seat-miles (000)	Revenue pas- senger load factor (percent)
					Express	Freight		
All American Aviation, Inc.	156,750	0	0	27.5	3,602	0	0	
Challenger Airlines Co.	85,762	1,650	403	6.0	1,237	1,810	1,801	22.38
Empire Air Lines, Inc.	77,388	1,039	251	2.0	523	0	762	32.94
Florida Airways, Inc.	69,756	855	104	2.6	223	0	558	18.64
Monarch Air Lines, Inc.	130,547	2,504	528	38.0	1,029	6,364	2,338	22.58
Pioneer Air Lines, Inc.	223,476	7,513	1,918	11.0	1,727	1,269	5,371	35.71
Southwest Airways Co.	187,424	7,691	1,389	34.3	3,147	2,184	3,854	36.04
Trans-Texas Airways	57,062	402	75	.1	7	0	1,198	6.26
West Coast Airlines, Inc.	106,516	4,520	533	4.6	583	0	2,201	24.22
Total	1,094,681	26,174	5,201	126.1	12,078	11,627	18,083	28.76

International and Overseas Air Carriers—September 1947

Operator	Revenue-miles	Revenue pas- sengers	Revenue pas- senger-miles (000)	Express and freight (tons)	Ton-miles flown		Passenger seat-miles (000)	Revenue pas- senger load factor (percent)
					Express	Freight		
American Airlines, Inc.	228,052	7,342	5,729	226.0	0	115,591	8,858	64.68
American Overseas Airlines, Inc.	817,308	7,091	18,561	45.9	159,213	0	28,830	64.38
Chicago & Southern Air Lines, Inc.	34,250	853	584	5.0	0	3,087	1,115	52.38
Colonial Airlines, Inc.	52,996	790	615	.2	143	0	1,958	31.41
Eastern Air Lines, Inc.	56,056	1,870	1,872	6.2	0	10,219	2,803	66.79
National Airlines, Inc.	32,807	2,312	726	24.0	6,587	0	1,509	48.11
Northwest Airlines, Inc.	316,608	2,099	4,470	34.1	1,608	38,647	8,778	50.92
Pan American Airways, Inc.:								
Atlantic Division	1,259,940	12,658	31,730	79.5	303,746	0	45,176	70.24
Latin American Division	2,440,754	59,033	55,971	872.0	1,206,400	0	95,379	58.68
Alaska Operations	186,974	4,473	4,425	45.0	46,355	0	8,113	54.54
Pacific Operations	1,130,648	7,374	21,888	71.0	273,293	0	30,383	72.04
Pan American-Grace Airways, Inc.	464,292	8,331	9,010	166.0	118,640	0	14,315	62.94
Transcontinental & Western Air, Inc.	953,998	8,267	27,112	59.0	247,906	0	34,712	78.11
United Air Lines, Inc.	151,200	2,586	6,206	6.0	12,695	0	6,617	93.79
Uraba, Medellin & Central Airways, Inc.	19,272	286	95	11.0	3,620	0	367	25.89
Total	8,145,155	125,365	188,994	1,650.9	2,382,206	167,544	288,913	65.42

CAA and CAB Releases

Copies of CAA releases may be obtained from the CAA Office of Aviation Information. CAB releases are obtainable from the Public Information Section of the Board. Both offices are located in the Department of Commerce Building, Washington 25, D. C.

Administration

New Airport Lights Under CAA Test. (Dec. 7)
Latin American Aviation Executives Trained in CAA's Sixth Inter-American Program—Seventh Starts Feb. 1. (Dec. 8)

Industry-Government Committee Nears Completion on DC-6 Study. (Dec. 4)

CAA Publishes Booklet on Money Making at Airports. (Dec. 9)

CAA Airworthiness Directives Will Go to Repair Agencies. (Dec. 12)

CAA to Develop First North-South Skyway. (Dec. 18)

C. I. Stanton, CAA Deputy Administrator, to Assume Important Aviation Post in Brazil. (Dec. 14)

Behncke Named on Aviation Psychology Committee. (Dec. 16)

Way Eased for Overseas Shipment of Gift Parcels by Air Express. (Dec. 17)

Board

Two Assistant Director Posts Created in CAB Safety Bureau. (Nov. 24)

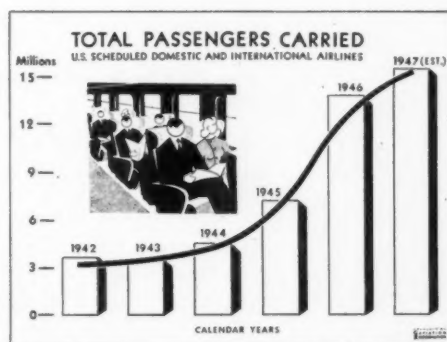
Domestic Trunkline Operating Statistics for July and August 1947. (Nov. 28)

Foreign Air Carrier Permit Issued Scandinavian Airlines System. (Dec. 3)

Piedmont to Keep Southeastern Route. (Dec. 15)

New Instruments for Board's Douglas DC-3. (Dec. 16)

Mississippi Valley Case Decision. (Dec. 18)



Scandinavian Airlines Create System for Foreign Service

Three Scandinavian companies, the Danish, Norwegian, and Swedish Airlines each awarded routes to the United States, have joined forces to create the Scandinavian Airlines System which will conduct their international service.

The CAB has issued a foreign air carrier permit to Scandinavian Airlines System (SAS) for service over the routes already granted the three companies, and has cancelled their individual permits.

Scandinavian Airlines System will carry on air transportation between the coterminals Stockholm, Sweden; Oslo and Stavanger, Norway; and Copenhagen, Denmark; and the alternate terminals New York City and Chicago. Intermediate stops are granted in the United Kingdom, Eire, Iceland, Greenland, The Azores, Labrador, Newfoundland, and the Province of Quebec, Canada.

New Runway Lights

(Continued from page 3)

too short for his large investment in planes and equipment to pay off, and that he believes night flying will be the answer—especially when more small airports install lights and night flying by private flyers increases.

Lights in Production.—At least five manufacturers are making small airport marker lights designed to conform to specification L-802. Such units are planned for lighting installations at small airports under the new Federal-aid airport program.

Some manufacturers are planning to market the units as part of a "packaged" airport lighting system. The "package" may include the marker lights, threshold lights, obstruction lights, lighted wind cone, cable cut in the proper lengths ready for splicing or plugging in (if equipped with molded-on plugs), insulating transformers, a transformer or regulator power supply in a cabinet with control panel on top, an airport rotating beacon, and necessary accessory equipment.

Mr. Vipond states the work in developing better lighting for small airports will also provide a new deal for the lighting of larger airports. The CAA will approve these same lights—with modified installation arrangements—for use on noninstrument runways of the large airports.

Airline Distances Published

Airline distances between 492 United States cities have been published by the Coast and Geodetic Survey in answer to a wide demand for this information. The list includes 392 cities now on airline routes, plus an additional 100 cities selected in anticipation of future needs. The book, "Airline Distances Between Cities in the United States," is available at \$1.75 a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

Revocation Penalty Handed Students For Giving Passengers Plane Ride

The surest way for a student pilot to lose his certificate is for him to take a passenger on a plane ride.

The Civil Aeronautics Board has one stock penalty, with rare exceptions, for students who break the passenger-carrying rule—revocation. Students aren't full-fledged pilots yet, however confident and cocksure they may feel after a few hours solo. They're still in the learning stage, inexperienced and subject to erratic behavior. They aren't ready to assume responsibility for another person's life and safety.

Twelve student pilots on this month's penalty list lost their certificates for carrying passengers.

Parking Lot Landing.—One of the students, Lewis W. Welborn, attempted to take off from an open field near a magnesium plant at Henderson, Nev. Two teen-aged girls were passengers. When the aircraft reached an altitude of about 200 feet, the engine started to spit and lose power. Welborn attempted to land in the parking lot of the magnesium plant, collided with some power lines and crashed to the ground. The plane received major damage, and the passengers sustained minor cuts, bruises, and shock.

A CAA inspector who investigated the crash 45 minutes later, ascribed the crack-up to the pilot's inexperience and excitement.

In addition to carrying passengers, Welborn was flying outside the assigned practice area without his instructor's permission.

Not Emergency.—Taking along a passenger to help him locate another person's residence did not constitute an emergency situation in the case of Richard C. Cowan, a CAB examiner ruled.

Cowan, a student pilot, stated he was in Big Sandy, Mont., on business collecting some back debts. He landed in a pasture owned by a dairy. Since he did not know where the person he wished to see lived, he took the owner of the dairy along to point out the residence.

On the take-off for the return flight to the dairy, Cowan climbed to an altitude of about 75 feet, then, in the belief that a valve had been broken on take-off, attempted to make an emergency landing. When about 15 feet above the ground, the plane stalled out and crashed. The passenger received a slight concussion. Cowan was not injured, but his plane was damaged.

Wasn't Ready for Trip.—With 8 hours' solo flight time, Harold B. Loudon attempted a cross-country flight he didn't prove equal to. He flew to his ranch south of Kalispell, Mont., where he picked up his brother, Robert Loudon. They then flew over the ranch property in an effort to locate the source of the high water which was flooding the land. While over a mountain range, the plane spun to the ground. The plane was demolished, and both Loudon and his brother were injured.

Loudon did not have the 10 hours' solo, or his instructor's permission to make the flight, two of the conditions required before a student can make flights outside a practice area. The examiner found that the crash was the result of the pilot's inexperience.

Although Loudon requested leniency, stating that the shock and expense of the accident had taught him a far greater lesson than any penalty the Board might impose, the examiner found no circumstances in the violation which might except him from the general revocation policy.

Hershel G. Langstaff, student pilot, carried a passenger on a picture-taking flight over a group of unoccupied houses at Shoshone, Calif. The course of the flight took him over a swimming pool full of bathers.

Five Persons Hurt.—Witnesses asserted Langstaff flew over the pool at an altitude of between 250 to 300

feet, stalled the plane while making a left bank and crashed into an automobile parking lot about 100 feet away. Three persons, all members of the same family who were standing behind their car in the lot were severely injured. The passenger suffered a back injury, and the pilot, two broken legs.

Langstaff's failure to maintain sufficient flying speed was responsible for the crash, the examiner found.

The other student pilots whose certificates were revoked for carrying passengers are: Robert L. Boke; Paul A. Duzik; Richard A. Wilson; Leo Vogler, Jr.; Donald B. Henley; Lee P. Clagett; Thomas Koumarelos; and Charles D. Burrus.

Listed below are pilots whose certificates have been suspended or revoked by current Board action for violations of the Civil Air Regulations. Identification numbers of the safety orders fixing the penalties appear in parentheses.

Revocations

Jorge B. Barrios, private, Miami, Fla. (S-131).
Wendall A. Porth, flight instructor rating, Milford, Utah (S-132).
James F. Gray, student, Pueblo, Colo. (SD-567).
Ernest Junior Cook, private, Yuma, Ariz. (SD-569).
Wallace Lee, private, Rochester, N. Y. (SD-570).
Bert A. Moxley, student, Belair, Md. (SD-574).
Dale E. Karger, commercial, McKees Rocks, Pa. (SD-575).
Lee J. Davidson, student, Cleveland, Ohio (SD-577).
Robert L. Boke, student, Belle Fourche, S. D. (SD-578).
Paul A. Duzik, student, Rock Springs, Wyo. (SD-579).
Lewis W. Welborn, student, Henderson, Nev. (SD-582).
Roger E. Cronn, student, San Jose, Calif. (SD-583).
Richard A. Wilson, student, St. Paul, Minn. (SD-584).
Leo Vogler, Jr., student, Detroit, Mich. (SD-586).
George W. Bristol, Jr., private, Amherst, Mass. (SD-590).
James J. Pargoe, private, 3 years, Washington, D. C. (SD-597).
Donald B. Henley, student, Yakima, Wash. (SD-607).
Lee P. Clagett, student, Arlington, Va. (SD-608).
Richard C. Cowan, student, Shelby, Mont. (SD-609).
Harold B. Loudon, student, Kalispell, Mont. (SD-610).
William Lee Hess, private, Manchester, Okla. (SD-612).
John Fiburn, private, Arlington, Tex. (SD-613).
Thomas Koumarelos, student, Hillsboro, Oreg. (SD-620).
Hershel G. Langstaff, student, Las Vegas, Nev. (SD-625).
Charles D. Burrus, student, Tucson, Ariz. (SD-629).

Suspensions

Harold G. Pryor, private, 30 days, Burlington, Iowa (S-130).
Bert W. Hawkins, commercial, 30 days, Mt. Shasta, Calif. (SD-568).
William R. Frye, private, 4 months, Springfield, Mass. (SD-571).
John W. Keeler, commercial, 4 months, Waukegan, Pa. (SD-572).
Winston C. Craigmile, commercial, 6 months, Hinsdale, Ill. (SD-573).
John R. Fee, student, 6 months, Hutchinson, Kans. (SD-576).
Gerald F. Gresham, private, 6 months, Wichita, Kans. (SD-580).
Clair F. Knuth, private, 5 months, Chicago, Ill. (SD-581).
C. C. Easton, Jr., commercial, 10 days, Denver, Colo. (SD-585).
Frederick E. Berry, student, 6 months, Stevens Point, Wis. (SD-587).
Lawrence K. Purvis, commercial, 60 days, Mattoon, Ill. (SD-588).
Julian C. Kaminski, commercial, 60 days, Chicago, Ill. (SD-591).
John R. Burgan, private, 6 months, Chicago, Ill. (SD-592).
Donald L. Smith, student, 6 months, Chicago, Ill. (SD-593).
Charles S. Barber, A&E mechanic, 3 months, Chicago, Ill. (SD-594).
Carlyle E. Goffinet, private, 90 days, Spokane, Wash. (SD-595).
Lester E. Peters, private, 6 months, Narberth, Pa. (SD-596).
Zane Galyen, student, 6 months, Galax, Va. (SD-598).
Wayne A. Hook, student, 6 months, Minneapolis, Minn. (SD-599).
Oliver E. Thompson, private, 6 months, Wichita, Kans. (SD-600).
Ralph L. Knott, student, 6 months, New Rockford, N. D. (SD-601).
Merald D. Folkstead, private, 3 months, Montevideo, Minn. (SD-602).
Kurt W. Wagner, student, 6 months, Freehold, N. J. (SD-603).
Arthur B. Kinley, student, 6 months, Pullman, Wash. (SD-604).
William J. Fenner, commercial, 90 days, Anaconda, Mont. (SD-605).
Allan C. Wood, private, 6 months, Seattle, Wash. (SD-606).
Edward E. Warde, Jr., student, 6 months, Seattle, Wash. (SD-611).
Robert E. Reed, private, 6 months, Seattle, Wash. (SD-615).
George W. Stratton, commercial, 30 days, Dayton, Ohio (SD-616).
James W. Haddon, A&E mechanic, 10 days, Beaverton, Oreg. (SD-617).
Norton H. Vance, airline transport, 15 days, Mission, Kans. (SD-618).
George Clegg, airline transport, 5 days (SD-619).
James H. T. Murphy, commercial, 20 days, New York (SD-621).
James A. Robbins, student, 6 months, Wichita, Kans. (SD-622).
Clifford E. Harvey, private, 90 days, Vevyan, Kans. (SD-623).
John J. Pfaffinger, airline transport, 30 days; Ronald E. Taylor, commercial, 60 days, Seattle, Wash. (SD-624).
Frank D. Guthrie, student, 6 months, Tucson, Ariz. (SD-626).
Clyde F. Gray, private, 6 months, Richland, Wash. (SD-627).
William H. Hodges, commercial, 6 months, Yakima, Wash. (SD-630).

CAB Official Actions

Regulations

Amdt. 41-15.----- Effective December 31, 1947
Amends section 41.26 (b) by striking "December 31, 1947", and inserting the new date, "December 31, 1948".
(This amendment extends for a year the present airworthiness requirements for United States planes used in overseas and foreign passenger service.)

Amdt. 43-12.----- Effective November 25, 1947
Section 43.23 is repealed, since the amended section 43.22 (b) provides for the same inspection requirements.

Special Reg. 361-D.----- Effective December 15, 1947
Extends to June 15, 1948, special operating rules for long-distance flights of domestic scheduled carriers. The special rules, 361-A, apply to long-range flights at altitudes above 12,500 feet east of longitude 100° W. and at altitudes above 14,500 feet west of longitude 100° W.

Special Reg. 340-D.----- Effective December 31, 1947
Extends until June 30, 1948, special regulation 340 containing provisions for issuing limited mechanic certificates which allow the holders to repair propellers and aircraft appliances. These provisions will be included in a revised edition of Part 24, Mechanics Certificates.

Airline Orders

E-990 consolidates applications of Chicago and Southern and Braniff for removal or modification of restrictions on service between Chicago and Houston; permits Mid-Continent to intervene in the proceeding. (Nov. 17)

E-991 permits PCA to begin service to Minneapolis and St. Paul on December 1 through the World-Chamberlain Field. (Nov. 17)

E-992 allows United to begin nonstop service on November 16 between New York City and Lincoln; Akron and Chicago; Lincoln and San Francisco; and Lincoln and Los Angeles. (Nov. 17)

E-993 dismisses certificate application of Dallas & Mavis Forwarding Co. on request of applicant. (Nov. 17)

E-994 approves agreement between Northeast, Northwest and PCA relating to a joint sales and ticket office and passenger loading facility in New York City. (Nov. 17)

E-995 dismisses tariff investigation ordered for Colonial Airlines by E-746. (Nov. 17)

E-996 disapproves interlocking relationships resulting from the positions held by A. Felix du Pont, Jr., in All American Aviation and Piasceki Helicopter Corp.—issued with opinion. (Nov. 18)

E-997 approves agreement between Chicago and Southern and Pioneer Air Lines relating to ticket sales for Pioneer at Houston. (Nov. 18)

E-998 dismisses certificate application of Union Air Lines for want of prosecution. (Nov. 19)

E-999 approves agreements between certain air carriers of the Air Traffic Conference of America relating to baggage, interline tickets and accounting. (Nov. 18)

E-1000 approves agreement between Pan American and Aerovias Nacionales de Colombia, S. A., relating to general purchasing agency. (Nov. 18)

E-1001 approves PCA-TWA agreement relating to ticket office space in Pittsburgh. (Nov. 18)

E-1002 dismisses Vlair's certificate application upon request of applicant. (Nov. 19)

E-1003 orders investigation of air freight tariffs filed by Delta Air Lines, and consolidates the proceeding with its investigation of freight tariffs filed by other carriers. (Nov. 19)

E-1004 allows American to begin service to Wilmington, Del., through the New Castle County Airport on November 29. (Nov. 20)

E-1005 approves PCA nonstop service between Lansing, Mich., and Milwaukee, Wis. (Nov. 21)

E-1006 allows Malcolm J. Renton to hold positions in Catalina Air Transport, Santa Catalina Island Co., and Wilmington Transportation Co. (Nov. 21)

E-1007 allows Whip Nunnally to hold positions in Delta Air Lines and Columbus Transportation Co. (Nov. 21)

E-1008 dismisses joint application of Richard Wagner and Penn-Central for approval of interlocking relationships. (Nov. 24)

E-1009 reinstates air freight application of Standard Air Lines. (Nov. 24)

E-1010 denies exemption request of Willis Air Service, a non-certificated cargo carrier, which would allow scheduled cargo transportation from the U. S. to Puerto Rico and between Puerto Rico and Virgin Islands. (Nov. 24)

E-1011 denies exemption petition of California Growers Air Express, Inc., which would allow the company to hold a letter of registration as a noncertificated cargo carrier. Applicant did not have a certificate of convenience and necessity on file with Board on May 5, 1947. (Nov. 24)

E-1012 temporarily exempts Trans-Air Hawaii from certain provisions of the Act insofar as they would prevent Trans-Air Hawaii from qualifying as a noncertificated cargo carrier and from engaging in scheduled transportation of property within the Territory. (Nov. 24)

E-1013 authorizes issuance of a foreign air carrier permit to Scandinavian Airlines System—issued with an opinion. (Nov. 24)

E-1014 denies petition of U. S. Airlines, in docket 3083, insofar as it requests issuance of a letter of registration as a noncertificated irregular air carrier to U. S. Flying Services, Inc.—Division of U. S. Airlines; dismisses petition in all other respects. (Nov. 24)

E-1015 consolidates application of Braniff Airways, Docket 3109, into the Continental Route Consolidation case—docket 576 et al., denies Continental's motion requesting that Braniff's request for consolidation be denied. (Nov. 24)

E-1016 consolidates into one proceeding all investigations of air freight rates, covering dockets 1705, 2808, 3042, 3143, 3144, 3145, 3160, 3162, 3170, 3184, and 3197. The portions of 1705 and 2808 dealing with air express rates and passenger fares are severed and assigned new docket numbers. (Nov. 20)

E-1017 dismisses, upon the request of Western Air Lines, certificate applications in dockets 2224 through 2226. (Nov. 25)

E-1018 approves agreement CAB 758 between Mid-Continent and Pan American relating to reduced rates for vacation travel by employees. (Nov. 25)

Air Regulations . on January 1, 1948

E-1019 permits Transcontinental & Western to inaugurate on November 29, nonstop service between New York, N. Y., and Allentown-Bethlehem, Pa., and between Harrisburg and Allentown-Bethlehem, on route 2. (Nov. 26)

E-1020 permits TWA to inaugurate on November 29, nonstop service between Pittsburgh, Pa., and Wilmington, Del., and between Wilmington and Harrisburg, Pa., on route 2. (Nov. 26)

E-1021 permits TWA to inaugurate on November 29, nonstop service between New York and Wilmington, Del., and between Pittsburgh, Pa., and Allentown-Bethlehem, Pa., on route 2. (Nov. 26)

E-1022 terminates suspension of letter of registration (No. 191) of Barnes Aircraft. (Nov. 26)

E-1023 institutes investigation to determine whether the rates, charges, rules and regulations contained in Air Freight Tariff No. 3, filed by National Airlines, are unjust, and consolidates this proceeding with docket 1705 et al.; suspends for 90 days the rates and charges contained in Sec. II, Part A of the Tariff. (Nov. 26)

E-1024 consolidates applications of Mid-Continent Airlines, docket 1050, proposing additional service between Waterloo, Iowa, and St. Louis, Mo., and Eastern Air Lines, docket 3151, proposing additional service between St. Louis, Mo., and St. Paul-Minneapolis, Minn., and assigns for hearing; assigns docket 3207 to the severed portion of docket 3151 of EAL which proposed service between Chicago, Ill., and Minneapolis-St. Paul, via Milwaukee, Rockford, Ill., and Rochester, Minn. (Nov. 28)

E-1025 orders that the Kansas City-Memphis-Florida Case be reopened for receiving in evidence the Board's Sept. 1946 Air Traffic Survey, and for reargument and reconsideration of the entire case; temporarily stays the amended certificate for route 8, issued to Chicago and Southern Airlines, insofar as it authorizes service between Kansas City, Mo., Springfield, Mo., and Memphis, Tenn. (Nov. 28)

E-1026 permits American Overseas Airlines to inaugurate on December 2, nonstop services between Reykjavik, Iceland, and Glasgow, Scotland, between Frankfurt am Main, Germany, and Copenhagen, Denmark, and between Glasgow and Frankfurt am Main. (Nov. 28)

E-1027 fixes temporary mail rate for Los Angeles Airways at \$1.00 per plane mile to be applied to mileage not exceeding 22,000 miles flown in any calendar month, and 60 cents per plane mile for mileage in excess of 22,000, without reference to base poundage of mail; orders that the proceeding remain open pending entry of an order fixing final rates retroactive to Oct. 1, 1947. (Nov. 28)

E-1028 directs Alaska Airlines to show cause why it should not be ordered to cease and desist from regular and scheduled transportation between the United States and Alaska, and from points and over routes not specified in its currently effective certificate. (Dec. 1)

E-1029 permits Trans-Texas Airways to begin service at Fort Stockton, Tex., on December 1, through use of Gibbs Field. (Dec. 1)

E-1030 allows American Airlines to serve Charleston-Dunbar, W. Va., beginning December 1 through use of Kanawha County Airport. (Dec. 1)

E-1031 allows Delta Air Lines to serve Kokomo and Richmond, Ind., beginning December 1 through use of Kokomo Airport and Richmond Municipal Airport. (Dec. 1)

E-1032 and E-1033 dismiss PCA's request for a new mail rate for a period prior to January 14, 1947, and a similar request by TWA covering period prior to March 14, 1947—issued with opinion. (Dec. 2)

E-1035 dismisses Greyhound Skyways' route application upon request of the company. (Dec. 5)

E-1036 dismisses certificate application of Faster Flying Freight upon company's request. (Dec. 5)

E-1037 fixes Alaska Airlines' temporary mail pay rate after Oct. 1, 1947, at 60 cents a plane mile based on a daily average of 1,000 miles. The sum of \$517,000 will be paid for mail service from Nov. 1, 1945, to Sept. 30, 1947. (Dec. 5)

E-1038 permits American, Mid-Continent, TWA and the Post Office Department to intervene in the Continental and Braniff proceeding—docket 576 et al. (Dec. 5)

E-1039 allows Pan American to suspend service at Maturin, Venezuela, on the Balboa-Port of Spain route for 3 months, or until the Maturin airport is adequate for use of DC-4 aircraft, if this improvement takes place before the 3 months is up. (Dec. 5)

E-1040 allows Pan American to suspend service at Coro, Venezuela, until the Venezuelan government grants permission for use of Las Piedras Airport, or until final Board decision on docket 2170. (Dec. 5)

E-1041 denies joint exemption petition of Santa Fe Skyway and the Atchison, Topeka and Santa Fe Railway Co. (Dec. 5)

E-1042 extends investigation of consolidated air freight tariffs to include revisions and supplements to the tariffs and individual tariffs filed since date of investigation order. (Dec. 2)

E-1043 denies exemption request of Resort Airlines which would permit scheduled all-expense air tours from the United States to the Caribbean area and Central America. (Dec. 8)

E-1044 allows Canadian Pacific Air Lines to operate until Oct. 3, 1948, the route granted Trans-Canada Air Lines from Whitehorse, Canada, to Fairbanks, Alaska. (Dec. 8)

E-1045 revokes wartime emergency order allowing Pan American to suspend its service in Alaska and Canada in case of Navy request. (Dec. 8)

E-1046 approves agreement between United Air Lines and Philippine Air Lines relating to loan of employees. (Dec. 8)

E-1047 dismisses application of Schreiber Trucking Co. for a certificate. (Dec. 9)

E-1048 serves that portion of Northeast Airlines' application proposing extension of segment 5, from docket 3182 and assigns docket 3214; consolidates various applications in the Additional Service in New England States Case—docket 2196 et al.; grants petitions of American, Eastern and Transcontinental & Western Air, the Postmaster General of the United States, the New England Conference of State Aviation Officials, the Aviation Committee of New England Council, the States of Rhode Island and New Hampshire, and the Monadnock Region Association, to become parties to and intervene in Docket 2196 et al. (Dec. 10)

E-1049 dismisses application of 9 companies for certificates authorizing air service generally in the New England States area. (Dec. 10)

E-1050 permits the Minneapolis-St. Paul Metropolitan Airports Commission to intervene in Docket 1050 et al. (Dec. 10)

E-1051 dismisses applications of TWA, Dockets 1045, 1044, and 2345, for certificates. (Dec. 11)

E-1052 dismisses applications of R. W. Putnam, d. b. a. Dartmouth Airways, Dockets 2139 and 3156. (Dec. 11)

TITLE	No.	PART			MANUAL		
		Price	Date	No. of Amendments	Price	Date	No. of Amendments
Aircraft							
Airworthiness Certificates.....	01	\$0.05	10/15/42	3	None	None	
Type and Production Certificates.....	02	.05	7/1/46	1	\$0.10	8/1/46	
Airplane Airworthiness—Normal, Utility, Acrobatic, and Restricted Purpose Categories.....	103	.25	12/15/46	3	None	None	
Airplane Airworthiness.....	104a	.15	11/1/47	1	.45	7/1/44	
Airplane Airworthiness Transport Categories.....	104b	Free	11/9/45	8	None	None	
Rotorcraft Airworthiness.....	06	.10	5/24/46	1	None	None	
Aircraft Airworthiness, Limited Category.....	09	.05	11/21/46		None	None	
Engine Airworthiness.....	13	.05	8/1/41		None	None	
Propeller Airworthiness.....	14	.05	7/15/42	1	.15	5/1/46	
Equipment Airworthiness.....	15	.05	5/31/46		No stock	7/1/38	
Radio Equipment Airworthiness.....	16	.05	2/13/41		Free	2/13/41	
Maintenance, Repair, and Alteration of Aircraft, Engines, Propellers, Instruments.....	18	.05	9/1/42		.60	6/1/43	
Airmen							
Pilot Certificates.....	20	.05	7/1/45	8	None	None	
Airline Pilot Rating.....	21	.05	10/1/42	4	None	None	
Lighter-than-air Pilot Certificates.....	22	.05	10/15/42	2	None	None	
Mechanic Certificates.....	24	.05	7/1/43	2	None	None	
Parachute Technician Certificates.....	25	.05	12/15/43	4	None	None	
Traffic Control Tower Operator Certificates.....	26	.05	10/10/45	2	None	None	
Aircraft Dispatcher Certificates.....	27	.05	7/1/46	1	None	None	
Physical Standards for Airmen.....	29	.05	1/10/46		None	None	
Flight Radio Operator Certificates.....	33	.05	8/1/47		None	None	
Flight Navigator Certificates.....	34	.05	8/1/47		None	None	
Flight Engineer Certificates.....	35	.05	3/15/47		None	None	
Operation Rules							
Air Carrier Operating Certification.....	40	.10	7/10/46	* 1	None	None	
Scheduled Air Carrier Operations Outside Continental United States.....	41	.05	5/1/46	* 15	None	None	
Nonscheduled Air Carrier Certification and Operation Rules.....	42	.05	8/1/46	* 6	.15	11/1/46	
General Operation Rules.....	43	.05	12/1/47		None	None	
Foreign Air Carrier Regulations.....	44	.05	11/1/47		None	None	
Operation of Moored Balloons.....	48	.05	9/28/47		None	None	
Transportation of Explosives and other Dangerous Articles.....	49	.05	7/1/45		None	None	
Air Agencies							
Airman Agency Certificates.....	50	.05	4/30/46		.15	5/15/46	
Ground Instructor Rating.....	51	.05	12/15/43	2	None	None	
Repair Station Rating.....	52	.05	10/1/42		Free	2/41	
Mechanic School Rating.....	53	.05	8/1/42	1	Free	5/40	
Parachute Loft Certificates and Ratings.....	54	.05	1/21/43		None	None	
Air Navigation							
Air Traffic Rules.....	60	.10	10/8/47		(1)		
Scheduled Air Carrier Rules.....	61	.10	8/1/46	* 12	None	None	
Miscellaneous							
Rules of Practice Governing Suspension and Revocation Proceedings.....	97	Free	1/1/47	1	None	None	
Definitions.....	98	No stock	10/15/42		None	None	
Mode of Citation.....	99	Free	11/15/40		None	None	
Regulations of the Administrator							
Aircraft Registration Certificates.....	501	Free	5/1/47		None	None	
Dealers Registration Certificates.....	502	Free	5/1/47		None	None	
Recordation of Aircraft Ownership.....	503	Free	5/1/47		None	None	
Notice of Construction or Alteration of Structures on or near Civil Airways.....	525	Free	7/23/43		None	None	
Seizure of Aircraft.....	531	Free	12/8/41		None	None	
Reproduction and Dissemination of Current Examination Materials.....	532	Free	1/15/43		None	None	
Federal Aid to Public Agencies for Development of Public Airports.....	550	Free	1/9/47		None	None	
Acquisition by Public Agencies for Public Airport Purposes of Land Owned or Controlled by the United States.....	555	Free	1/9/47		None	None	
Claims for Reimbursement for Rehabilitation or Repair of Public Airports Damaged by Federal Agencies.....	560	Free	1/9/47		None	None	

* Certain aircraft may comply with the provisions of this part or part 04a.

† Special regulations 340 and 340D.

‡ Special regulations 361A, 361D.

§ Special regulations 385, 390, 390B, 403.

|| Combined with Flight Information Manual.

¶ Special regulations 361A, 361D, 385, 390, 390B.

NOTE: Those parts and manuals for which there is a price are

E-1053 permits Trans-Texas Airways to serve Eagle Pass, Tex., on Dec. 15, 1947, through the use of Maverick County Airport. (Dec. 11)

E-1054 approves an agreement between American and Trans-Canada Airlines relating to the lease of hangar space at the Cleveland Municipal Airport. (Dec. 12)

E-1055 authorizes British Overseas Airways Corp. to increase the frequencies operated between Baltimore, Md., and Bermuda, to twice daily service in each direction between Dec. 15, 1947, and Jan. 15, 1948. (Dec. 12)

E-1056 authorizes issuance of a temporary certificate for route 87 to Piedmont Aviation, Inc.; denies all other petitions—issued with an opinion. (Dec. 12)

E-1057 authorizes Trans-Texas Airways to suspend service temporarily at Uvalde, Tex., only so long as Garner Field, Uvalde, Tex., is inadequate and unsuitable for safe operations. (Dec. 15)

obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Remittances should be by check or money order, payable to the Superintendent. Currency is sent at sender's risk. Amendments, Special Regulations and free Parts are obtained from the Publications Section, Civil Aeronautics Board, Washington 25, D. C.; free Manuals and Regulations of the Administrator from the CAA Office of Aviation Information, Dept. of Commerce, Washington 25, D. C.

E-1058 denies application of Eastern Air Lines for a temporary exemption from certain terms in its certificates for routes 5 and 6. (Dec. 15)

E-1059 approves for 6 months an agreement between Braniff Airways and Aerovias Braniff, S. A., relating to rental of facilities and services. (Dec. 15)

E-1060 grants Parks Air Transport and Southern Airways feeder routes in the Mississippi valley area; adds new stops to route systems of Trans-Texas Airways, Mid-Continent, EAL, Delta, Chicago & Southern and TWA—issued with an opinion. (Dec. 18)

E-1062 consolidates proceedings in dockets 2719 and 3087 and assigns the following caption and docket—Air Freight Tariff Agreement case—docket 2719. (Dec. 17)

E-1063 approves agreement between Trans-Canada Air Lines and Mid-Continent Airlines, relating to agency matters. (Dec. 17)

Make Stall Warning Devices Compulsory, Researchers Advise

Compulsory installation of stall warning devices on all private airplanes has been recommended by a group of aviation psychologists, on the basis of tests which show that not only student and private pilots, but flight instructors themselves, consistently fail to detect pre-stall conditions in light aircraft.

Tests Made at Airports.—The recommendation was made by the Committee of Aviation Psychology of the National Research Council, after receiving a report on stall recognition studies conducted by the Educational Research Corporation at Bedford Field, Bedford, Mass.; Cumberland Airport, Nashville, Tenn.; and Westchester County Airport, New York. The studies were carried out under the direction of Dr. P. J. Rulon, with funds provided by the Civil Aeronautics Administration.

The committee's recommendation for requiring stall warning devices, according to Chairman Morris Viteles, is subject to the proviso that field tests demonstrate that available instruments can be adequately maintained and function properly over an extended period.

The stall recognition study was undertaken after investigations by Dean Brimhall, Assistant to the CAA Administrator for Research, and his consultant, Raymond Franzen, had shown that the inadvertent stall was responsible for a large percentage of the serious accidents in private flying.

Can't Identify Stall.—In addition to finding that the typical pilot cannot identify the "edge" of a stall when he consciously tries to bring his plane to that point, Dr. Rulon discovered that his subjects frequently approach a stall when they are told to stay in normal flight.

Dr. Rulon tested 254 pilots and instructors in all, putting 119 of them through their paces in an unfamiliar as well as a familiar type of plane. Performance was markedly poorer in the unfamiliar airplane, both as to ability to bring the plane to the stall point during assigned maneuvers, and as to inadvertent approach to stalls during unassigned maneuvers.

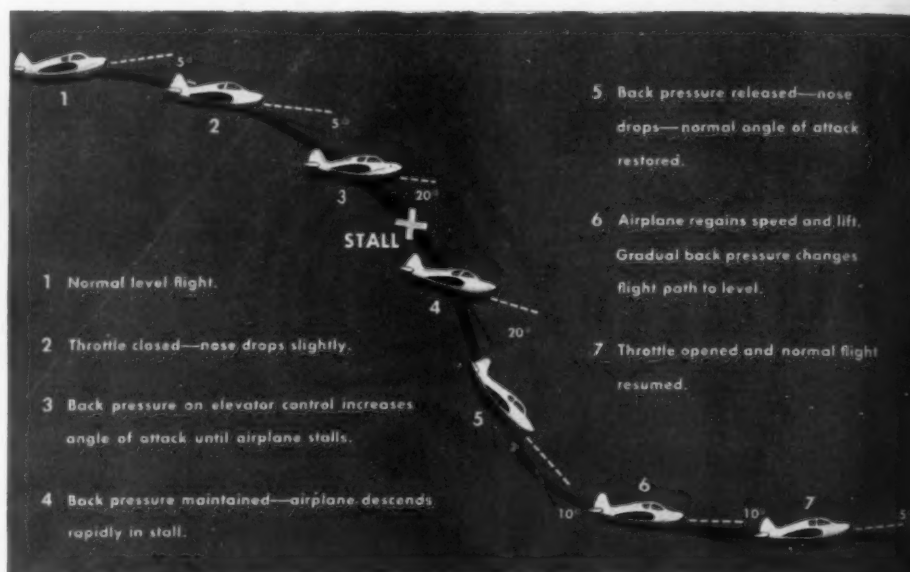
The instructors' record was better than that of the pilots, but the report calls it "far from adequate," and states that "this may well explain the inadequacies in the performance of private and student pilots."

Training Needed Too.—In transmitting to Dr. Brimhall the committee's recommendation for compulsory stall warning devices, Dr. Viteles pointed out that it "does not imply that the necessity of training in the stall; of improving methods for giving such training; and of directing increased attention to the avoidance of a stall as a basic factor in safe flying can be disregarded." He said it is the committee's plan to continue research in the latter areas.

The planes used in the experiment were specially equipped with a device similar in some respects to a pinball machine. From one to five lights, visible to the check pilot but not to the subject, were activated according to how near to a stall the subject maneuvered the plane. The lights were set off by a series of vanes on the leading edge of the wing, set to "trigger" at different angles of attack. This was an adaptation of a commercially available stall warning indicator, originally developed under a CAA contract.

The report, entitled "A Study of the Accuracy of Recognition of the Incipient Stall in Familiar and Unfamiliar Planes," is available from the CAA Office of Aviation Information.

Pointers on Safe Flying Given Pilots In New CAA "Facts of Flight" Book



This diagram, typical of the illustrations used in the new book to emphasize correct flight techniques, indicates conditions before, during, and after a stall.

"Facts of Flight," third in a series of practical manuals written for private pilots, has been issued by the Civil Aeronautics Administration.

Like its companion books, "Realm of Flight," dealing with meteorology, and "Path of Flight," with navigation, the new publication uses simple, nontechnical language and is illustrated in color.

It contains essential information on plane behavior and flight techniques the pilot needs for safe flying. This information is presented as a supplement, rather than a substitute for competent flight instruction.

Beginning with the basic laws of flight, the book explains briefly and simply why an airplane flies and how use of the controls affects its flight.

The whys and wherefores of stalls and spins are discussed at length to brief pilots on how to avoid or recover from these maneuvers which cause more than

half of the fatal accidents.

Methods of handling the plane to avoid exceeding the load and speed limitations are discussed. The pilot is also given general principles of engine operation to help him obtain dependable and efficient service and to avoid engine trouble.

Other chapters cover proper techniques in taking off, cruising and landing; seaplane operation; and safety in flight.

"Facts of Flight" may be obtained at 50 cents a copy from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. "Realm of Flight," which explains the basic principles of meteorology and offers specific suggestions to the pilot for interpreting weather data and weather conditions he encounters in flight, is 60 cents. "Path of Flight," explaining basic navigation, is 40 cents.

CAA Approves North-South Skyway

A project to develop a north-south skyway—the first to reach from border to border—has been approved by T. P. Wright, Administrator of Civil Aeronautics.

Stretching from the Canadian border at Pembina, N. Dak., to the Mexican border at Laredo and Brownsville, Tex., the new skyway will be known as Skyway Eleven. Intended solely for visual flying, the new skyway will provide a safe 40-mile-wide north-south route for private pilots.

Second Skyway.—Skyway Eleven is the second skyway project to be approved by Mr. Wright. The first, known as Skyway One, extends from Washington to Los Angeles. An extensive airmarking program along Skyway One is now under way.

Skyway Eleven divides into east and west alternate routes at Sioux City, recombining at Manhattan, Kans. It branches again at San Antonio, Tex., with alternate routes to Laredo and through Corpus Christi to Brownsville.

Eventually, if approved by the governments of Canada and Mexico, Skyway Eleven will become the first international skyway, with terminals at Winnipeg,

Canada, and Mexico City, Mexico.

Airmarking Started.—An airmarking program is now under way along the southern part of Skyway Eleven, and cities and towns on the northern part of the route are expected to install CAA-approved markers during next spring and summer with the cooperation of state aviation commissions. Communities on the skyway are:

Pembina, Grand Forks, Fargo, Wahpeton, N. Dak. Breckenridge, Wheaton, and Ortonville, Minn. Milbank, Watertown, Arlington, Madison, and Sioux Falls, S. Dak.

Canton, Hawarden, Sioux City and Onawa, Iowa. Fremont, Wahoo, Lincoln, Beatrice, Marysville, Omaha, Weeping Water, and Tecumseh, Nebr.

Manhattan, Junction City, Frankfort, Herington, Newton, Wichita, and Wellington, Kans.

Blackwell, Perry, Guthrie, Oklahoma City, Purcell, Pauls Valley, and Ardmore, Okla.

Gainesville, Denton, Arlington, Auxiliary Field, Grand Prairie, Hillsboro, Waco, Temple, Austin, San Marcos, San Antonio, Laredo, and Corpus Christi, Tex.

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